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10/538,079	06/09/2005	Koji Matsumoto	0020-5381PUS1	7194

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EXAMINER
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MILLER, MICHAEL G

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1712

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/538,079  
Filing Date: June 09, 2005  
Appellant(s): MATSUMOTO ET AL.

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John W. Bailey  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 08 NOV 2010 appealing from the Office  
action mailed 04 MAR 2010.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 1-3, 5 and 8-10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Isozaki (US 6,337,369) in view of Starzewski (US 5,670,092).

Claim 4 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Isozaki in view of Starzewski further in view of DesMarais et al (U.S. 6,362,244).

Claim 6 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Izosaki in view of Starzewski further in view of Dempo (US 5,512,178).

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

6,337,369	ISOZAKI	01-2002
5670092	STARZEWSKI	09-1997
6,362,244	DESMARAIS et al	03-2002
5512178	DEMPO	04-1996

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

- 1) Claims 1-3, 5, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isozaki (U.S. Patent 6,337,369, hereinafter '369) in view of Starzewski (U.S. Patent 5,670,092, hereinafter '092).
- 2) With regard to Claim 1, '369 teaches a method for producing a polarizing film comprising:

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- a) The step of dipping a polyvinyl alcohol film in/on which iodine is adsorbed and oriented in an aqueous solution containing boric acid at a temperature of 55 – 85 degrees Celsius ('369 Column 6 Lines 38-50 and Column 4 Lines 59-67).
- b) A weight ratio of water : boric acid : potassium iodide in said aqueous solution containing boric acid is 100 : (2 – 15) : (2 - 20) ('369 Column 6 Lines 38 – 51 teaches 100 : 2 : 4).
- c) '369 is silent as to the limitation wherein contact between the aqueous solution and oxygen is suppressed.
- d) '369 teaches that for PVA dry-stretching, an oxygen-poor atmosphere is desirable to prevent discoloration of the PVA (Column 4 Lines 1-12) and that a heat treatment may be conducted after the fixing step (Column 4 Lines 59 - 67).
- e) '092 teaches that a post-fixing heat treatment improves the polarization properties of the PVA film when performed in the absence of oxygen. (Column 2 Lines 4-7, Column 3 Line 66 – Column 4 Line 31).
- f) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have combined the method of '369 with the post-treatment step of '092 because '369 wants to create a polarizing film and '092 teaches a way to improve the optical properties of a polarizing film.
- g) '369/'092 discloses the claimed invention except for wanting to suppress contact between the aqueous solution and oxygen. It would have been obvious to one having ordinary skill in the art at the time the invention was made to perform this suppression since it was known in the art that oxygen produces deleterious

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effects in the processing steps immediately surrounding it (discoloration in the stretching step, impaired polarization in the heat treatment step).

- 3) With regard to Claim 2, '369/'092 teaches the method according to claim 1, except for the following limitation:
  - a) The contact between said aqueous solution containing boric acid and oxygen is suppressed by adjusting an oxygen concentration in an atmosphere which is in contact with said aqueous solution to 5% by volume or less.
  - b) Both '369 and '092 teach using nitrogen atmospheres to exclude oxygen during the dry stretching and heat treatment respectively. There would be a reasonable expectation of success of excluding oxygen from contact with the aqueous solution if a nitrogen atmosphere were kept over the aqueous solution. The degree of exclusion is a result-effective variable and as such is held to be routine experimentation.
- 4) Claim 3 is duly rejected on the same grounds as Claim 2, as Claim 3 calls for the method of either Claim 1 or Claim 2 wherein the exclusion is performed using an inert gas (nitrogen taught above).
- 5) Claim 5 is rejected on the same grounds as Claim 3, as it requires the method of Claim 3 wherein the inactive gas is nitrogen.
- 6) With regard to Claim 8, '369/'092 teaches the method according to claim 1, wherein:
  - a) A dipping time is from 90 to 1,200 seconds ('369 Column 6 Lines 38-51, 240s).
  - b) '369 teaches a temperature of 30°C for the aqueous solution which is below the claimed temperature of 50 to 85°C.

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- c) '369/'092 discloses the claimed invention except for the specific temperature of the fixing bath. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to adjust the temperature of the bath, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 223 (CCPA 1955).
- 7) With regard to Claim 9, '369/'092 teaches the method according to claim 1, wherein said polyvinyl alcohol film has a polymerization degree of 1,500 to 5,000 ('369 Column 6 Lines 38-51, 4000).
- 8) With regard to Claim 10, '369/'092 teaches the method according to claim 1, wherein said polyvinyl alcohol film in/on which iodine is adsorbed and oriented is a film produced by dipping an unstretched polyvinyl alcohol film in a solution containing iodine and potassium iodide and then uniaxially stretching it ('369 Column 6 Lines 38-51).
- 9) Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over '369/'092 as applied to claim 3 above, and further in view of DesMarais et al (U.S. Patent 6,362,244, hereinafter '244).
- 10) With regard to Claim 4, '369/'092 teaches the method according to claim 3 except for the following limitation:
- a) Wherein the dipping of said polyvinyl alcohol film in said aqueous solution containing boric acid is carried out while bubbling said inactive gas in said aqueous solution.

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- b) As shown above, '369/'092 has motivations to remove oxygen from the processing system. It known in nature that aqueous solutions can carry dissolved gases, including oxygen.
- c) '244 teaches that deoxygenation of a liquid is known and that is usually performed by sparging a liquid with nitrogen or argon (Column 5 Lines 1-5).
- d) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made because '369/'092 wants to make a polarizing film in a low-oxygen environment and '244 teaches that one way to remove oxygen from a liquid system is to bubble an inert gas through the system.

11) Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over '369/'092 as applied to claim 1 above, and further in view of Dempo (U.S. Patent 5,512,178, hereinafter '178).

12) With regard to Claim 6, '700 teaches the method according to claim 1, except for the following limitation:

- a) Wherein said polyvinyl alcohol film is dipped in said aqueous solution containing boric acid while said aqueous solution is treated with activated carbon continuously or intermittently.
- b) As shown above, '369/'092 has motivations to remove oxygen from the processing system. It known in nature that aqueous solutions can carry dissolved gases, including oxygen, as well as other oxidizing materials.



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- c) '178 teaches that an activated carbon filter can be used to remove oxidizing substances from an aqueous solution (Column 3 Lines 34 – 48). Oxygen is the prototypical oxidizing substance in nature.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made because '369/'092 wants to make a polarizing film in a low-oxygen environment and '178 teaches that one way to remove oxygen from a liquid system is to bubble pass the liquid through an activated carbon filter.

092).

#### **(10) Response to Argument**

With regards to the rejection of Claims 1-3, 5 and 8-10:

Applicant asserts that a *prima facie* case of obviousness has not been presented with regard to these claims. Examiner will address these assertions.

Applicant's first assertion is that the film as claimed is different than the film which is taught by the combination of Isozaki and Starzewski. Examiner respectfully disagrees, as the resultant film of both processes is a PVA base film which has been treated in a boric acid solution and which has iodine adsorbed and oriented on it. Applicant has not claimed further distinct limitations in the application with regards to the film as of this time and has not challenged Examiner's discussion that the composition of the boric acid treatment solution is proper.

Applicant's second assertion, related to the first assertion, is that the structures responsible for creating the polarizing effect in the film are different and as such the films created must be different and therefore not properly combinable. Examiner

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respectfully disagrees, noting again that the base polymer in all three cases is PVA and that, particularly in the case of Isozaki, the polarizing effect is produced by the dichroic properties of iodine, which is applied to the film prior to stretching and dipping in the claimed bath. Therefore, there is a base similarity of material underlying all three polarizing effects (the PVA which has admixtures of chemicals adsorbed to it) and a person having ordinary skill in the art at the time the invention was made would have considered all three items as related matter.

Applicant's third assertion is that the silence of Isozaki in discussing the heat-treatment of PVA in the presence of oxygen at temperatures below 100 degrees Celsius is a teaching that the polarizing film may not be discolored by oxygen at these temperatures. Examiner counters that oxygen is known to be a highly reactive compound and that oxygen at elevated temperatures is known to discolor PVA as shown in the art. Given the minimal temperature difference between 100 degrees Celsius and 85 degrees Celsius as claimed, there would be no reason for one of ordinary skill in the art at the time the invention was made to assume that the chemical oxidation of PVA in the presence of oxygen would function completely differently across such a narrow temperature range.

Applicant's fourth assertion is that proper rationale was not provided in order to combine the references and proceeds to expound upon the KSR rationales. Examiner respectfully notes that while the KSR rationales are provided as common rationales for why combinations of references would be obvious, the Office is not restricted merely to these seven formulaic methods of combination. Examiner provided a proper rationale

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for combination (Isozaki teaches that it is known to provide post-fixing treatments to PVA films but does not provide one; Starzewski teaches that post-fixing heat treatment in the absence of oxygen improves optical properties of PVA polarizing films).

Examiner's rationale for Claim 1 is provided below for convenience.

Claims 1-3, 5, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isozaki (U.S. Patent 6,337,369, hereinafter '369) in view of Starzewski (U.S. Patent 5,670,092, hereinafter '092). With regard to Claim 1, '369 teaches a method for producing a polarizing film comprising:

- d) The step of dipping a polyvinyl alcohol film in/on which iodine is adsorbed and oriented in an aqueous solution containing boric acid at a temperature of 55 – 85 degrees Celsius ('369 Column 6 Lines 38-50 and Column 4 Lines 59-67).
- e) A weight ratio of water : boric acid : potassium iodide in said aqueous solution containing boric acid is 100 : (2 – 15) : (2 - 20) ('369 Column 6 Lines 38 – 51 teaches 100 : 2 : 4).
- f) '369 is silent as to the limitation wherein contact between the aqueous solution and oxygen is suppressed.
- g) '369 teaches that for PVA dry-stretching, an oxygen-poor atmosphere is desirable to prevent discoloration of the PVA (Column 4 Lines 1-12) and that a heat treatment may be conducted after the fixing step (Column 4 Lines 59 - 67).
- h) '092 teaches that a post-fixing heat treatment improves the polarization properties of the PVA film when performed in the absence of oxygen. (Column 2 Lines 4-7, Column 3 Line 66 – Column 4 Line 31).

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- i) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have combined the method of '369 with the post-treatment step of '092 because '369 wants to create a polarizing film and '092 teaches a way to improve the optical properties of a polarizing film.
- j) '369/'092 discloses the claimed invention except for wanting to suppress contact between the aqueous solution and oxygen. It would have been obvious to one having ordinary skill in the art at the time the invention was made to perform this suppression since it was known in the art that oxygen produces deleterious effects in the processing steps immediately surrounding it (discoloration in the stretching step, impaired polarization in the heat treatment step).

Applicant's remaining assertion is that since the other introduced references do not cover the alleged deficiencies of the primary and secondary references, the remaining claims are patentable. Examiner respectfully notes that the other references do not have to cover deficiencies which are not present. The discussion of these deficiencies has been addressed above.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Michael G. Miller/

Examiner, Art Unit 1712

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Conferees:

/Timothy H Meeks/

Supervisory Patent Examiner, Art Unit 1715

/Anthony McFarlane/